Service
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MODEL：VA320M

Service Manual

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SAFETY NOTICE

ANY PERSON ATTEMPTING TO SERVICE THIS CHASSIS MUST FAMILIARIZE HIMSELF WITH THE CHASSIS AND BE AWARE OF THE NECESSARY SAFETY PRECAUTIONS TO BE USED WHEN SERVICING ELECTRONIC EQUIPMENT CONTAINING HIGH VOLTAGES.

CAUTION: USE A SEPARATE ISOLATION TRANSFOMER FOR THIS UNIT WHEN SERVICING

Important Safety Notice

Proper service and repair is important to the safe, reliable operation of all AOC Company Equipment. The service procedures recommended by AOC and described in this service manual are effective methods of performing service operations. Some of these service operations require the use of tools specially designed for the purpose. The special tools should be used when and as recommended.

It is important to note that this manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment. It is also important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. AOC could not possibly know, evaluate and advise the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, AOC has not undertaken any such broad evaluation. Accordingly, a servicer who uses a service procedure or tool which is not recommended by AOC must first satisfy himself thoroughly that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.
Hereafter throughout this manual, AOC Company will be referred to as AOC.

WARNING
Use of substitute replacement parts, which do not have the same, specified safety characteristics might create shock, fire, or other hazards.

Under no circumstances should the original design be modified or altered without written permission from AOC. AOC assumes no liability, express or implied, arising out of any unauthorized modification of design.
Servicer assumes all liability.

FOR PRODUCTS CONTAINING LASER:
DANGER-Invisible laser radiations when open AVOID DIRECT EXPOSURE TO BEAM.
CAUTION-Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
CAUTION -The use of optical instruments with this product will increase eye hazard.

TO ENSURE THE CONTINUED RELIABILITY OF THIS PRODUCT, USE ONLY ORIGINAL MANUFACTURER'S REPLACEMENT PARTS, WHICH ARE LISTED WITH THEIR PART NUMBERS IN THE PARTS LIST SECTION OF THIS SERVICE MANUAL.
Take care during handling the LCD module with backlight unit
-Must mount the module using mounting holes arranged in four corners.
-Do not press on the panel, edge of the frame strongly or electric shock as this will result in damage to the screen.
-Do not scratch or press on the panel with any sharp objects, such as pencil or pen as this may result in damage to the panel.
-Protect the module from the ESD as it may damage the electronic circuit (C-MOS).
-Make certain that treatment person’s body is grounded through wristband.
-Do not leave the module in high temperature and in areas of high humidity for a long time.
-Avoid contact with water as it may a short circuit within the module.
-If the surface of panel becomes dirty, please wipe it off with a soft material. (Cleaning with a dirty or rough cloth may damage the panel.)

Revision List

Version	Release Date	Revision Instructions	TPV Model
A00	Feb-15-09	Initial Release	E329GDNK7WVZNNS
A01	Jun-23-09	Revision Release	E329ADNK7WVZNNS

1. General Specification

1. General Specification

Display panel

Panel Model	: LC320WUE-SAA1
Active Area	: 689.40(H)*392.85(V) inch diagonal
Outline Dimension	: 760（H）x 450（V）x 43 mm（D）Typ.
Pixel Pitch	: 0.36375 mm x 0.36375 mm
Pixel Format	: 1920 X 1080 (Full HD), RGB strip arrangement
Color Depth	: 10– bit ,106B colors
Luminance	: 500Cd/m2 ,Typ
Backlight	: CCFL
Response Time	: 6msec.(Typ. : gray to gray)
Contrast Ratio	: 900:1(Min.) 1300 :1(Typ.)
EEFL MTBF	: 50,000 hrs min.

Power Supply

PSU		: N/A	
AC-input		: 100~240 Vac +/- , 50~60Hz	
Normal Operation	Power consumption	: < 130 W (Standard mode)	
Standby power		:< 1W (110V/60Hz only)	
Power cord length		: TBD	
Power cord type		: 3 lead with earth plug , pluggable	(US type)
Power indicator		: LED (On: White , Standby: Amber)	

Environmental Conditions

Temperature	:	0°C to 40°C
Humidity	:	10 to 90%(non –condensing)
Altitude	:	0 to 10000 feet
Air pressure	:	700 to 1100 mBAR

Note: recommend at 0 to 35°C, Humidity less than 60 %

2. Operating Instructions

2.1 The Use of Remote Control

POWER:	Press to turn on/off the TV from or to standby mode.
INPUT:	Press to select TV/AV/Comp1/Comp2/ HDMI1/HDMI2/ HDMI3/HDMI 4/VGA/Photos/Music
TV:	Press to select TV input
AV:	Press to select AV input
COMP:	Press to select COMPONENT1/ COMPONENT2 input
HDMI:	Press to select HDMI1/HDMI2/ HDMI3/HDMI4 input
Number Key:	1. Press number button to direct access to TV channel 2. Press the pass code to activate the factory mode 3. Press to activate the Channel Lock (enter PIN code for Channel lock)
- Button :	Use the button for digital channels.
LAST:	Press to alternate between the currently viewed program and previously viewed program
INFO:	To display information of currently channel/source.
INPUT:	1. Press repeatedly to select the signal source: 2. The Source List should be activated and show on OSD.
VOL +/ -:	Press to adjust the volume
MUTE :	Interrupt the sound or restore it.
CH +/ - :	Press to browse channels
MENU/SELECT:	Press to activate OSD menu and activate the setting/selection of OSD
Cursor Key:	1. Press button to navigate OSD menu 2. Cursor right key perform confirmation as well as proceed next level of OSD
PIP:	TBD
SWAP:	TBD
EXIT:	Exit OSD
PAUSE:	Freeze the screen and start recording currently program.(Onlywork in DTV)
PLAY:	Continue play program from pause point.
STOP:	TBD

2.2 To Use the Menus

1. Press the MENU button on the remote control or the side of the TV and the OSD menu will be shown on the screen.
2. Press the UP and Down arrow buttons on the remote control buttons or the CH + or CH – buttons on the side of the HDTV to select one of the other menu options.
3. Once the menu option is displayed, press the Left arrow button on the remote control or the VOL + or VOL – button on the side of the TV to select one of the items to adjust.
4. Press the MENU button to return to previous screen when finished.
5. Repeat steps 2 through 5 to adjust additional options within this menu.
6. Once the adjustments are completed press the EXIT button to exit the OSD completely.

MAIN MENU

The OSD consists of several menu options: Input, Multimedia, Channels, Picture, Audio, Parental Control and Settings.

Note: Some of the submenu options may vary depending on your selected input source.

Input
When highlighted it allows you to see all the different inputs built into the TV. There are eleven options under this selection:DTV/TV, AV, Comp1, Comp2, HDMI1, HDMI2, HDMI3, HDMI-Side, RGB, Photos and Music.

Multimedia
Selecting multimedia gives you the option of Photosand Music, allowing them to be combined as a presentation or slideshow with background music.

Channels
If the input signal is either antenna or cable (no set-top box) service, using the channel option allows scanning the

signal for channels. Under this option, you will find the following choices and features: Master List, Additional Scan, Scan Channels and Channel Name Edit.

Picture

This option will display all parameters which setting values would produce the video quality to the end user'spreference. The choices under this selection are: Picture Settings, View Mode, Noise Reduction, Fast Response and Reset Picture.

Audio

This function encompasses all parameters to setup the audio preferences. The choices under this selection are: Balance, Optical Out, Speakers, Analog Preference, Digital Preference, SRS TruSurround HD, SRS TruVolume, Equalizer, Bass & Treble and Reset Audio.

Parental Control

This option covers all requirements to help adults on preventing children from watching undesirable content or programs. To obtain the submenu, a four-digit PIN or password needs to be input. These are the choices and features provided for this selection: Ratings Locks, Channel Locks, User Control Lock, Change PIN and Reset Locks.

Settings

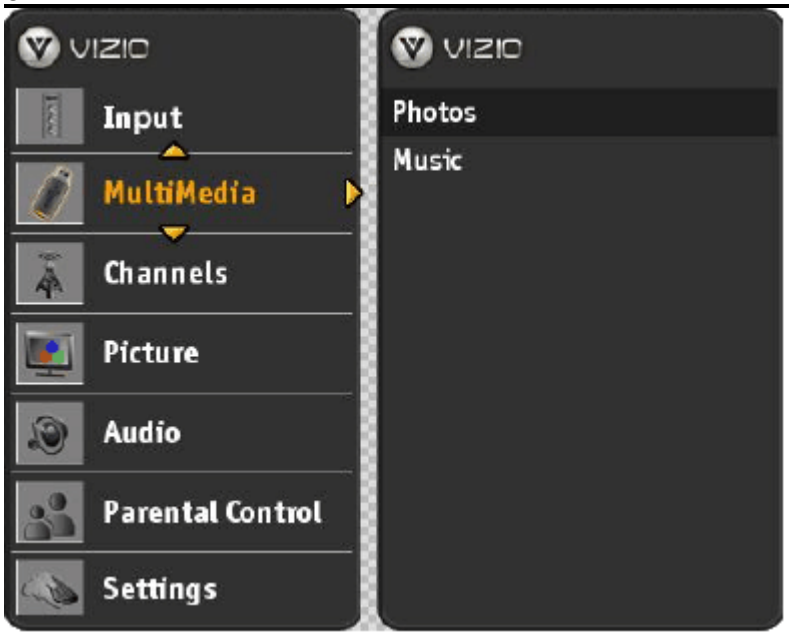
Through Settings all the different global parameters which apply to the TV can be adjusted to end user preferences; Following are the choices and features of this selection: Closed Captions, Input Labels, Menu Language, Date &Time, Sleep and Reset All.

INPUT ADJUSTMENT

1. Press INPUT on the remote or on the side of your HDTV to select the input source that matches the connection you made on the back of your HDTV. A repeated press of INPUT cycles you through the options.

2. Turn on your component (cable box, VCR, satellite receiver, DVD player, etc.). You should see a picture on your HDTV. If you do not see a picture, press INPUT repeatedly until you do see a picture.

MULTIMEDIA ADJUSTMENT



The following options are available in the Photos menu:

Browse Photos
This option switches to Photos mode in a browse view screen, allowing the user to see thumbnails of the photos, if available.

View Slideshow
This option switches to Photos mode and starts the slide show displaying the images in your USB storage device.

Slide Settings
This option allows controlling the behavior or ways of how you would like to display the images or pictures. Under these settings, the choices are: Repeat, Shuffle, and Entertainment Mode (background music is played), Full Screen (it stretches the picture to fill the screen) and Speed (elapsed time between pictures).

The following options are available in the Music menu:

Browse Music
This option switches to Music mode in a browse view screen allowing the user to see the screen displaying the description and titles of the songs available in the USB storage device.

Music Settings
This option allows to set up the options on how you would like to listen to the songs. Under these settings, the choices are: Repeat, Song Gap (elapsed time between songs), Shuffle, Music Mode (energy savings mode; if selected on Entertainment Mode, the displayed pictures will be darker), Entertainment Mode (music and slide show) and Full Screen.

CHANNELS ADJUSTMENT

The following options are available in the TV menu:

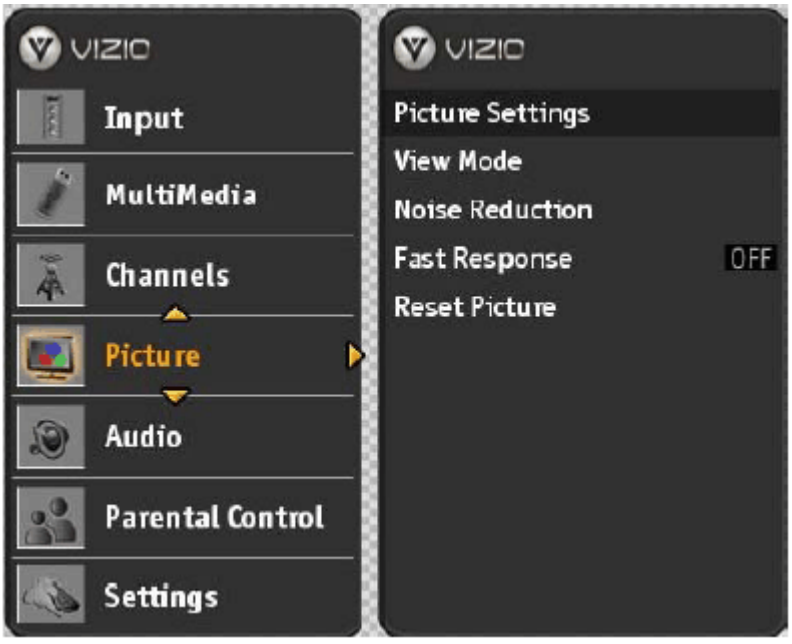
Master List
After your HDTV has stored all of the available channels in memory, you can skip channels from the channel list that you do not want to see and which signals are not strong enough to produce a good picture. You can still tune to skipped channels using the numbered keys on the remote control.

Additional Scan
Turning this option On allows your HDTV to scan for additional channels if Scan Channels had been interrupted.

Scan Channels
This option allows scanning for available channels in your local area; either over the air (antenna) or cable service (no set-top box) is being used. After all of the available channels have been scanned, they are placed in the master list.

Channel Name Edit
This option allows you either to edit the given name or to assign a new name to the scanned channels, according to your preference.

PICTURE ADJUSTMENT



The following options are available in the *Picture* menu:

Picture Settings
Select Home, Movie, Vivid, Game and Custom.

View Mode
This option lets you determine how the image appears on the screen. Select Normal, Expanded, Full Screen, or Panoramic.

Noise Reduction – This option diminishes picture artifacts caused by the digitizing of moving images, the settings being Off, Low, Medium and High.

Fast Response
This option increases the screen display response when games are being played on the source.

Reset Picture
This option allows the user to reset any changed value in the Picture menu to the factory value without altering other menu settings.

AUDIO SETTING ADJUSTMENT

Balance
This option allows for compensation of one channel (Left or Right Audio) being higher or lower than the other in order to bring stereo effect back into balance.

Optical Out
This option allows selection of the type of processing for the SPDIF (Optical connector) when used with a Receiver/Amplifier/Home Theatre system.

- **Auto –** Select to produces 5.1 channel Dolby Digital ® surround sound audio.
- **Force PCM** - Select to output audio in 2-channel stereo.

Speakers
Turn off the internal TV speakers when listening to the audio through your home theater system. Analog Preference
This option allows turning the analog audio preference Mono or Stereo or selecting the SAP (alternate language) of the broadcast signal.

Digital Preference
This option allows selecting the language (English, French or Spanish) preference of the digital audio.

SRS TruSurround HD
Turn the simulated surround feature *On* or *Off*.

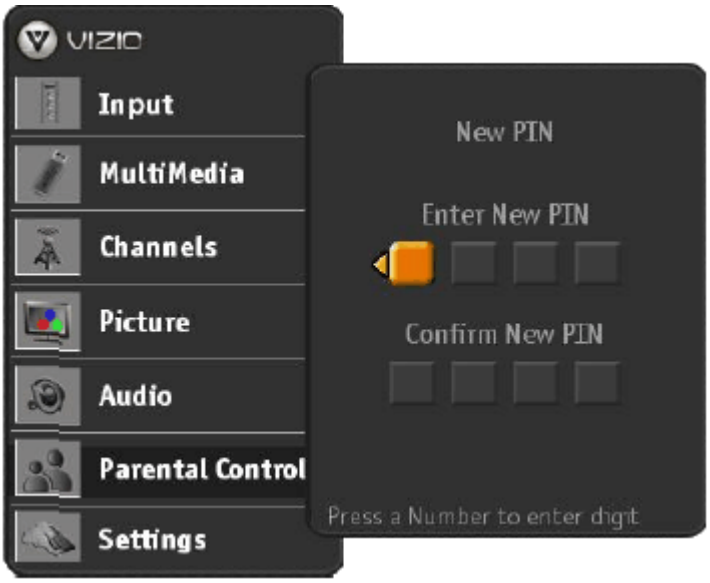
SRS TruVolume
When the programming switches to a commercial or when changing from channel to channel, volume fluctuations occur. The SRS TruVolumeTM provides the listener with a comfortable and consistent volume level.

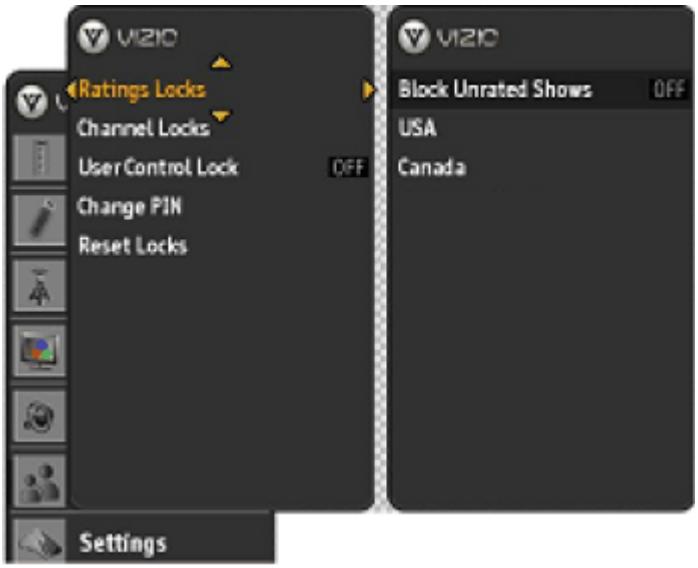
Equalizer
To adjust the level for different frequencies of the Stereo audio signal, use this option.

Bass & Treble
Adjust low and high frequency sounds. You can also adjust for bass and treble boost or attenuation.

Reset Audio
This option allows the reset of any changes done to the adjustable parameters within the Audio menu

PARETAL CONTROL ADJUSTMENT





When viewing a DTV / TV or a component, or AV source, the following parental control OSD screens are available within the Parental Control OSD menu. Parental Control options are not available when viewing an HDMI source. You can restrict certain channel and program viewing by turning on parental controls. Selected programs, movies and channels can then be made available only after an authorized password has been entered. **The default password is 5351.**

Ratings Locks
This option allows blocking channels based on the ratings established by regulations.

Channel Locks
This option allows blocking channels no matter what content.

User Control Lock
This option allows blocking the usage of the controls panel on side of your HDTV.

Change PIN
This option allows creating a new PIN (password) to use the Parental Control features.

Reset Locks
This option allows resetting the changes made in the parental control feature menu, using this option there is no need to individually reset the settings unless it is desired.

SETTING ADJUSTMENT

Closed Captions
Adjust Closed Caption settings of the program being viewed.

Input Labels
Allows assigning names to the different input connections to your preference.

Menu Language
Select the language displayed in the OSD menus, the choices are: English, French and Spanish.

Date & Time
Allows adjusting the displayed time and date.

Sleep
Your HDTV can be set to turn off automatically after 30, 60, 90, or 120 minutes.

Reset All
Allows resetting the TV features to factory values on all adjustable parameters.
These choices require a PIN to prevent unauthorized changes, and they are described as follows:

- **Start set up Wizard** – Use this function to return to the Initial Setup when the TV was used for the first time.

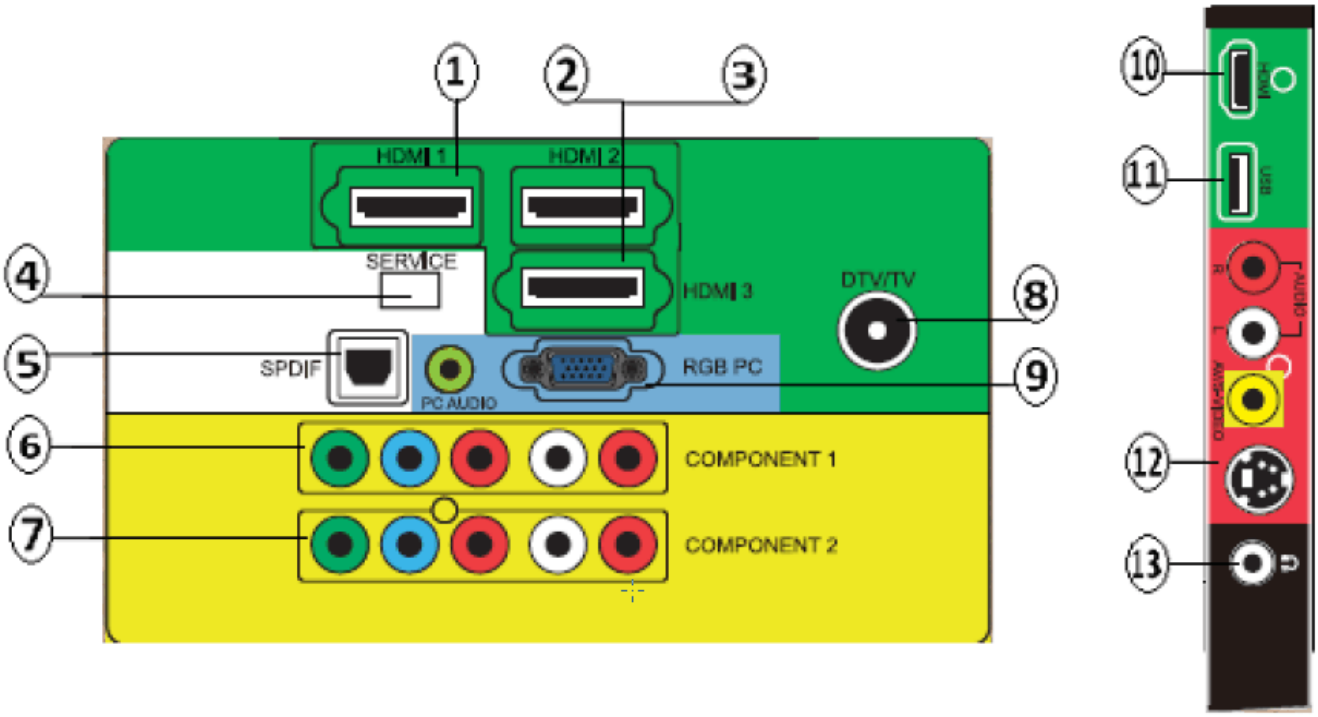
Note: Previously scanned channels will be removed.

- **Reset All Settings** – Settings are reset to factory defaults.

Note: This does NOT reset the Parental Control Password, and the previously scanned channels are not removed.

2.3 Connector

2.3.1 Rear signal



- Component Video In & Audio L/R In (YPbPr, Cinch, COMP1/COMP2)
- D_SUB in & Phone jack In
- Coaxial aerial I/P (TV input)– F-type (75 Ω)
- HDMI1/HDMI2/HDMI3 In
- SPDIF out
- 3 pin connector (for service)

The I/O function is located on TV module, including
Tuner: NAFTA.
HDMI 1: HDMI input (support HDCP) with digital audio
HDMI 2: HDMI input (support HDCP) with digital audio
HDMI 3: HDMI input (support HDCP) with digital audio
HDMI 4: HDMI input (support HDCP) with digital audio
AV1: CVBS,S-Video component (RCA jack) with audio R/L (RCA jack).
RGB : D_SUB with audio R/L (phonejack)
COMP1 : YPbPr component video1 (RCA jack) with audio R/L (RCA jack).
COMP2 : YPbPr component video2 (RCA jack) with audio R/L (RCA jack).
USB: Photos and Music ,Pause live
SPDIF: Digital audio sound output connector

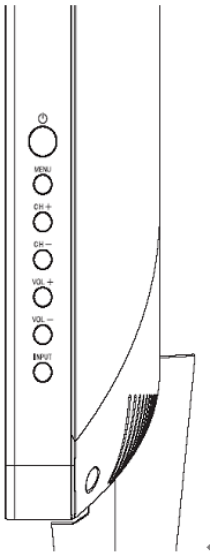
2.3.2Side AV

- Headphones jack output
- S-Video In
- CVBS In (Cinch AV)
- Audio L/R In (Cinch)
- USB In (Photo and Multimedia)
- HDMI4 In

2.4 Front Panel Control Knobs

Remote control sensor- this is the window through which all of the remote control signals pass to the sensor. Point the remote control directly at this window for the best response to the remote signal.

Power light- the power light will illuminate with a amber light when the HDTV is powered off, a white light indicates the HDTV is powered ON.

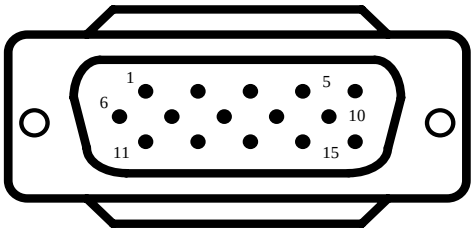


Key	TV/video mode
• (Power)	Power on / off
Menu	Enter /Exit OSD menu
“+“ (Channel)	Menu Navigate Up/Channel up
“-“ (Channel)	Menu Navigate Down/Channel Down
“+” (Volume)	Menu Navigate Right/Increase/Volume up
“-” (Volume)	Menu Navigate Left/Decrease/Volume down
Input	Select the signal source

Status	VizioLED behavior
Normal on	White
Standby	Amber

3. Input/Output Specification

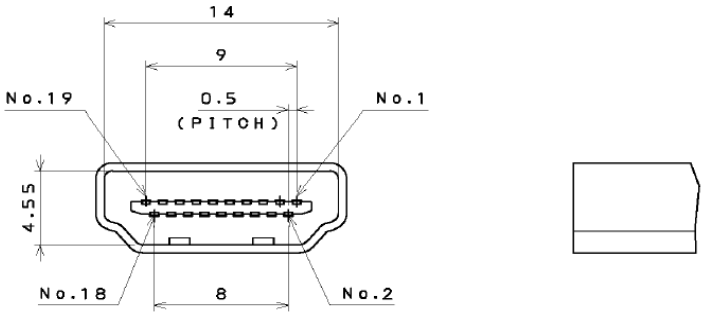
3.1 RGB Signal input



15 - Pin Color Display Signal Cable

Pin No.	Description	Pin No.	Description
1	Red Video	9	Mandatory +5V Supply for PC Bypass
2	Green Video	10	Sync Ground
3	Blue Video	11	SDA(Remote Control)
4	SCL(Remote Control)	12	Bi-directional Data (SDA) for PC Bypass
5	Ground	13	H-Sync.
6	Red Video Ground	14	V-Sync.
7	Green Video Ground	15	Data Clock (SCL) for PC Bypass
8	Blue Video Ground		

3.2 HDMI Digital connector pin assignments(NAFTA only)



Pin No.	Description	Pin No.	Description
1	TMDS Data2+	2	TMDS Data2 Shield
3	TMDS Data2-	4	TMDS Data1+
5	TMDS Data1 Shield	6	TMDS Data1-
7	TMDS Data0+	8	TMDS Data0 Shield
9	TMDS Data0-	10	TMDS Clock+
11	TMDS Clock Shield	12	TMDS Clock-
13	CEC	14	NC
15	SCL	16	SDA
17	DDC/CEC Ground	18	+5V Power
19	Hot Plug Detect		

3.3 Video input format

Physical Inputs	Resolution	Frequency
NTSC from RF	720 x 480	60i
AV (Side AV: CVBS and Y/C)	720 x 480	60i
YPbPr X2	720 x 480	60i
	720 x 480	60p
	1280 x 720	60p
	1920 x 1080	60i
	1920 x 1080	60p
VGA	640*480	60
		75
	720*400	70
	800*600	60
		72
		75
	1024*768	60
		70
		75
	1360X768	60
	1920*1080	60
HDMI (DVI via HDMI)	640*480	60
		75
	720*400	70
	800*600	60
		72
		75
	1024*768	60
		75
	1360X768	60
	1920*1080	60

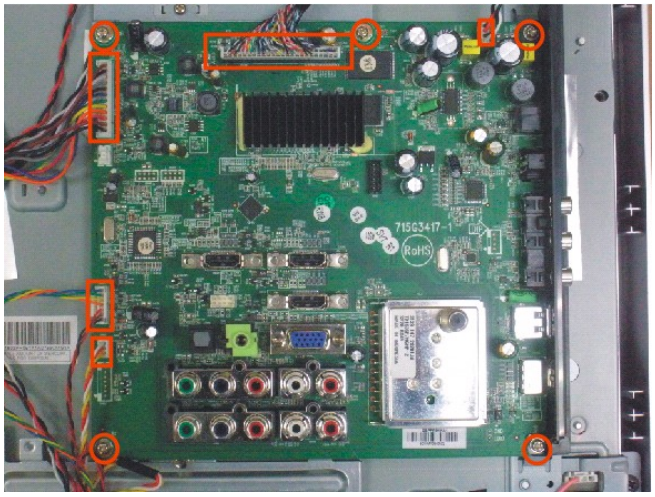
4. Mechanical Instructions

1. Remove the one screw to remove the stand base.

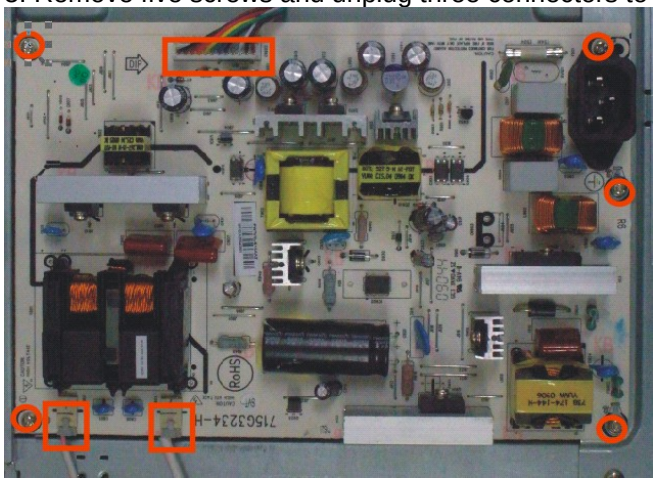
2.Withdraw the stand cover

3. Remove fifteen screws to remove the rear cover.

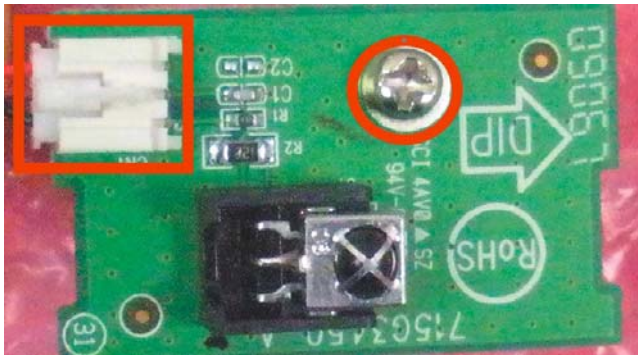
4. Remove five screws and unplug five connectors to remove the scaler board.



5. Remove five screws and unplug three connectors to remove the power board.

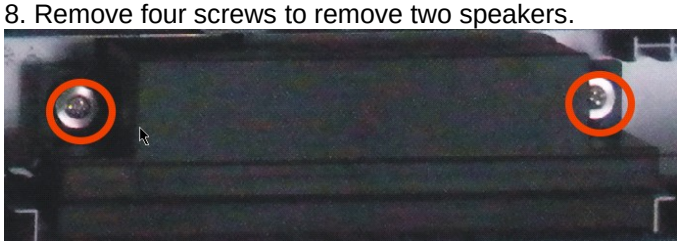


6. Remove the screw and the connector to remove the IR board.



7. Remove the connector to remove Key Board.

8. Remove four screws to remove two speakers.

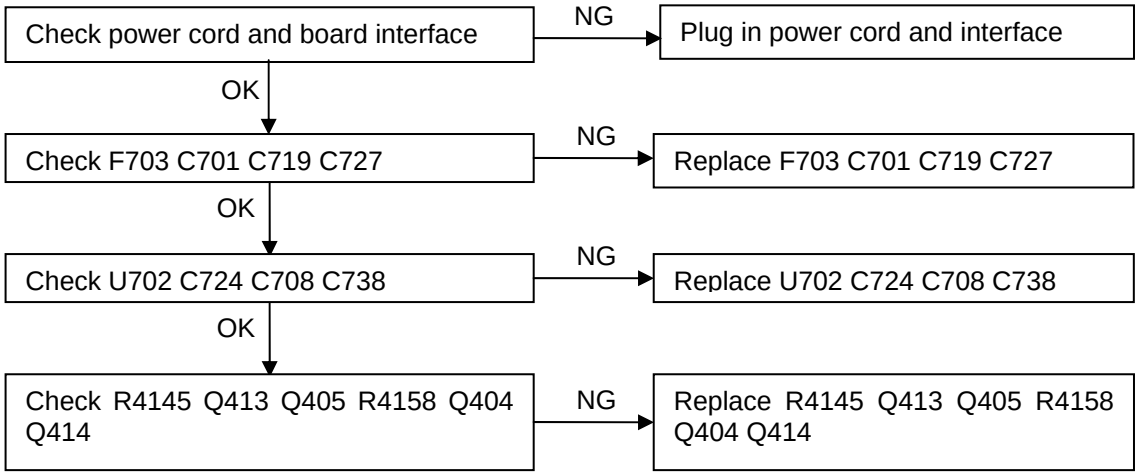


9.Remove nighteen screws to remove the metal frame and the bezel assy.

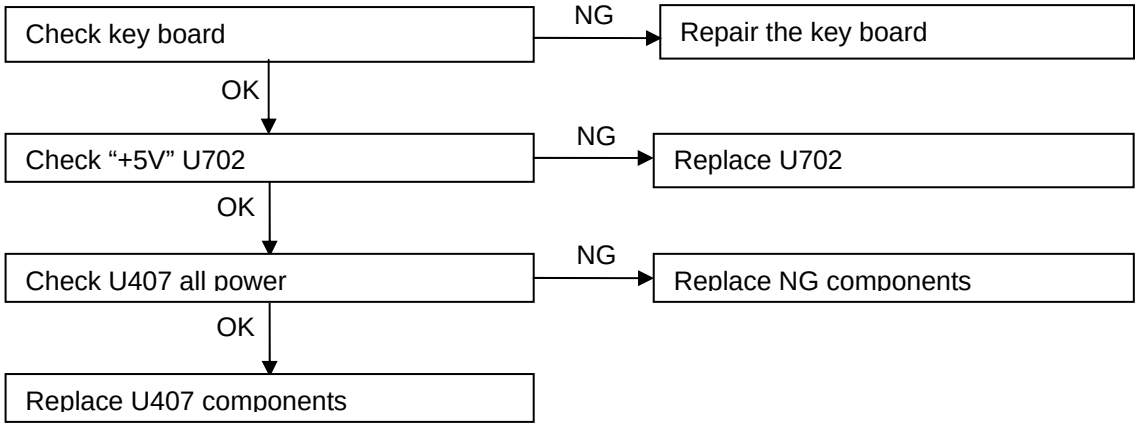
. 10.The panel

7. Repair Flow Chart

1. No Power (No LED indicator)

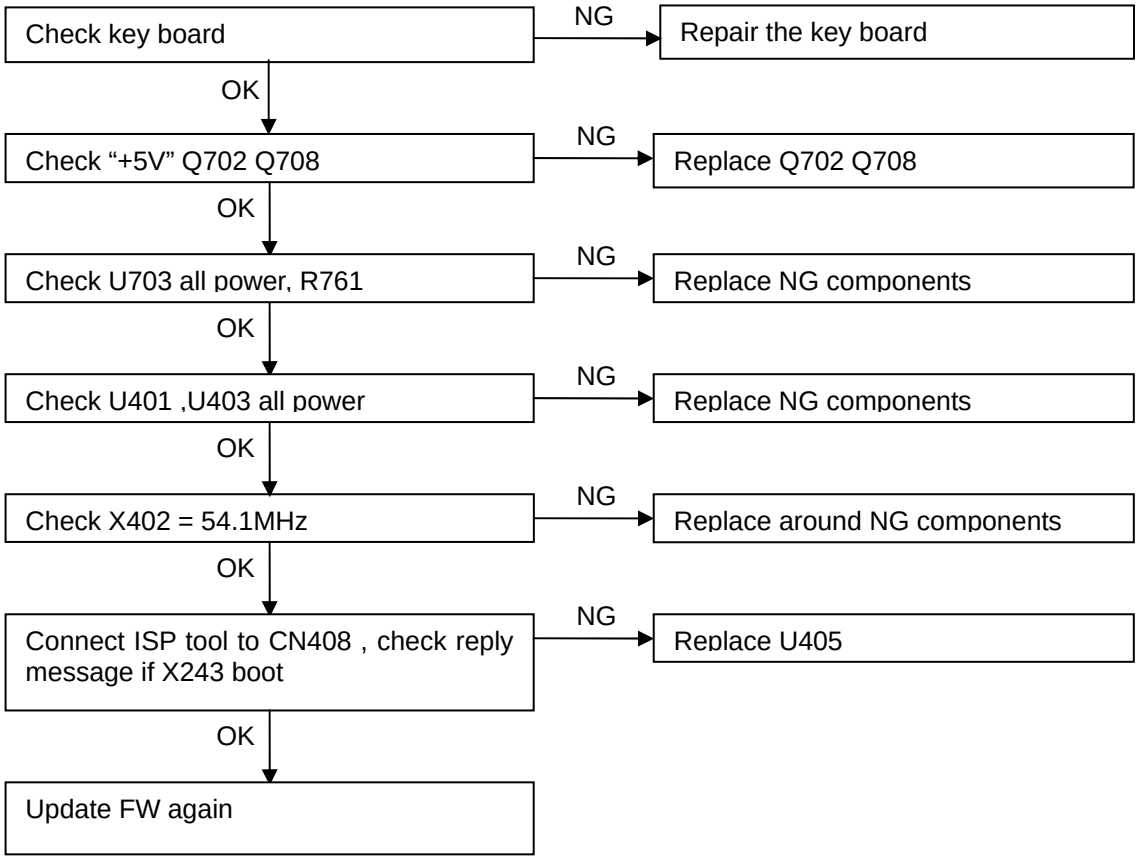


2. Can not start (LED indicator Orange)

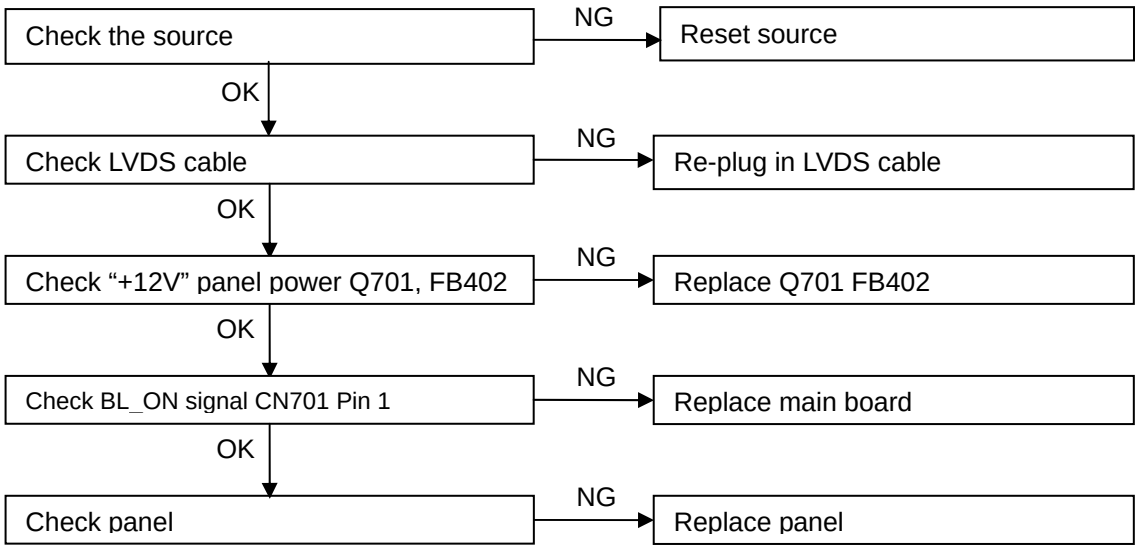


3. No display (LED indicator White)

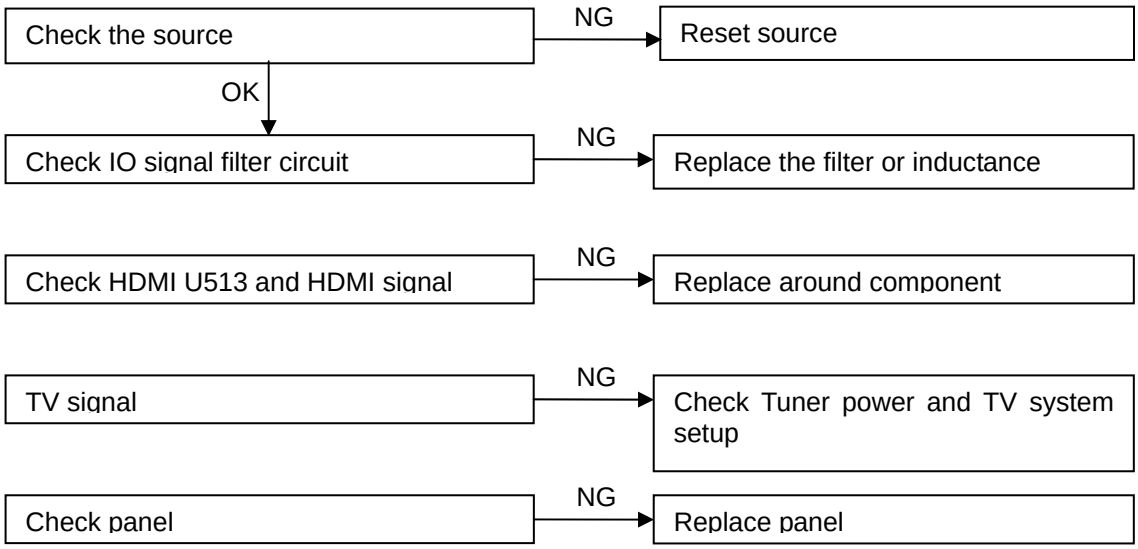
(A)U401 X243 don't work



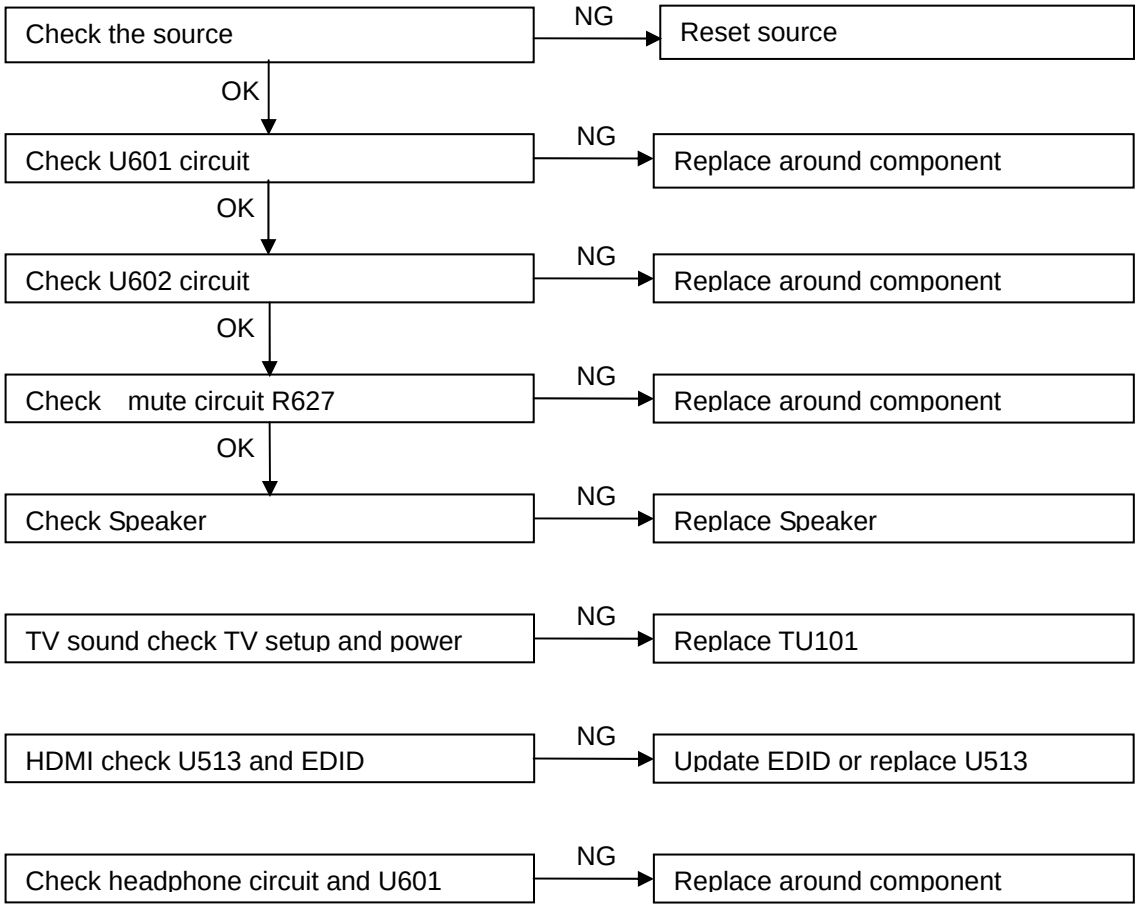
(B)U401 X243 work



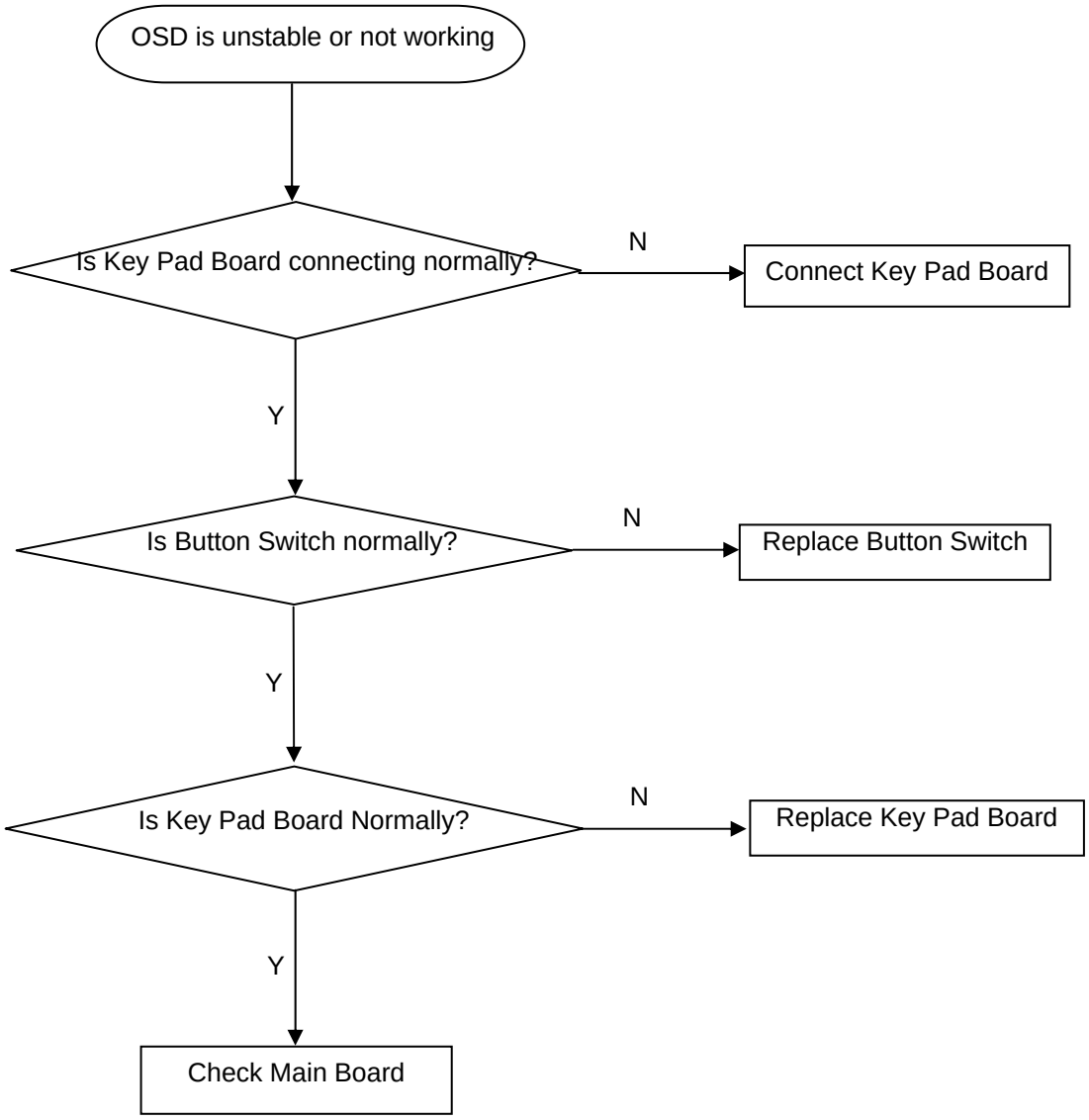
4. Abnormal display



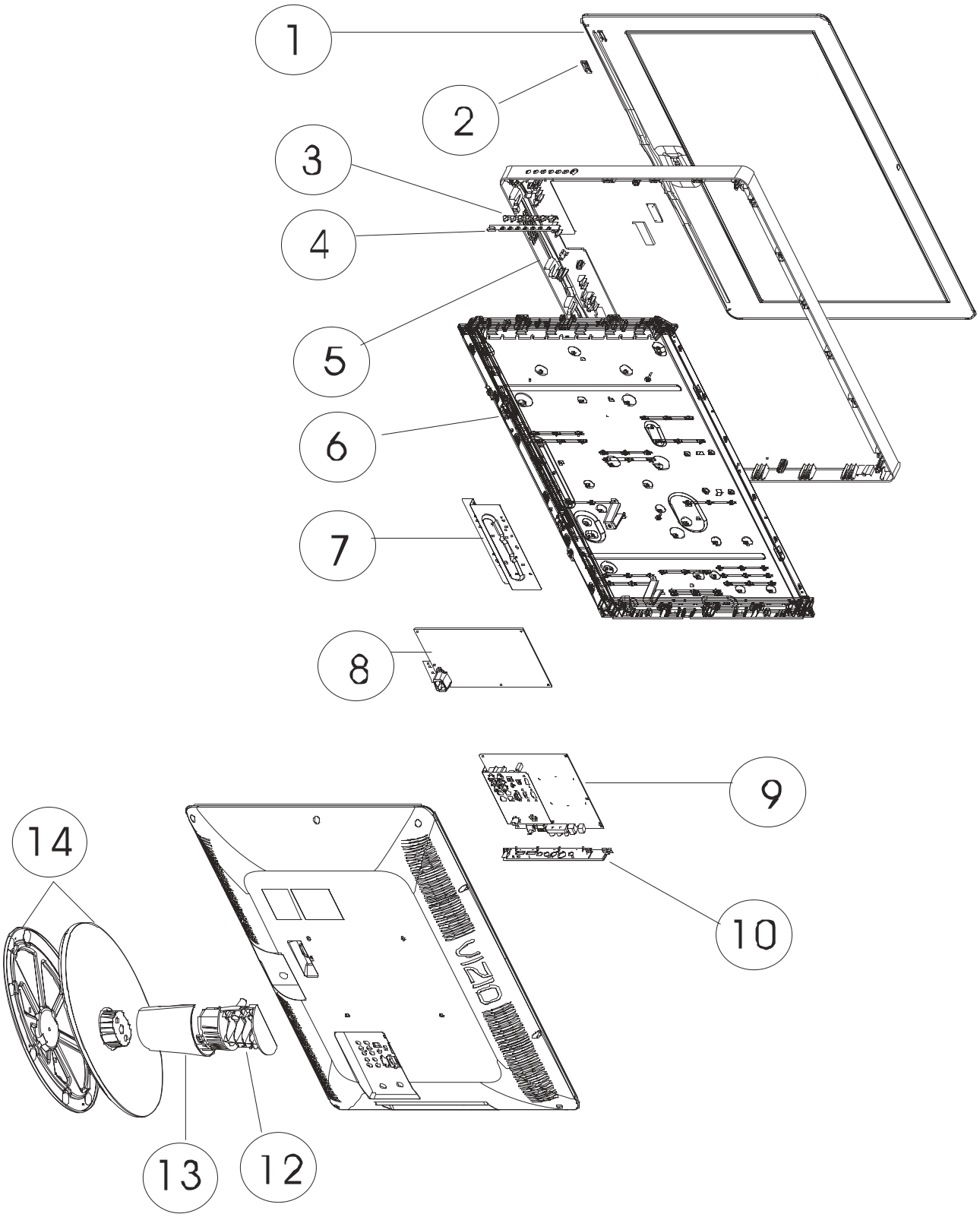
5. No sound

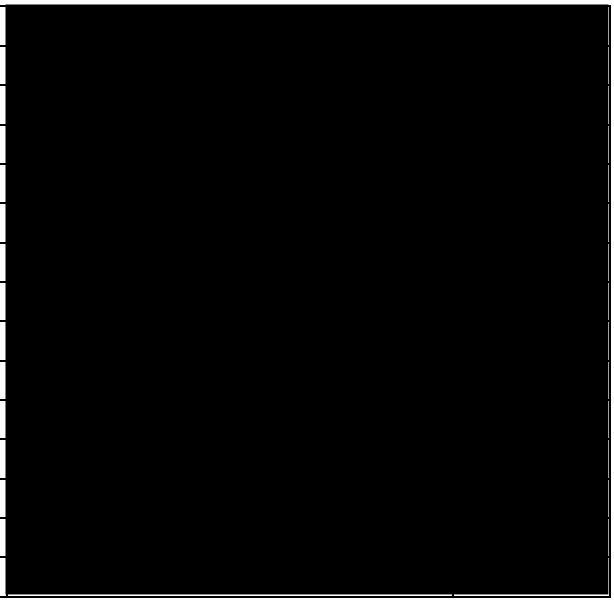


6. Key Board


OSD is unstable or not working
Is Key Pad Board connecting normally?
N
Connect Key Pad Board
Y
Is Button Switch normally?
N
Replace Button Switch
Y
Is Key Pad Board Normally?
N
Replace Key Pad Board
Y
Check Main Board

13.Exploded View



E329GDNK7WVZNNS

ITEM	DESCRIPTION
1	A34T1137PAN 1L0100
2	IRPF8AA6
3	A33T0583 WS 1L0100
4	KEPF8AB3
5	A34T1138 WS 1L0100
6	750TVG320UEA11N000
7	A15T0622101
8	PWTV8LG1GAAZ
9	CBPFRD1KA1
10	705GZ934056
11	A34T1139PAR 1A0100
12	A34T1140PAN 1L0100
13	A34T1141PAN 1L0100
14	705GZ934044